

Customer No.: 31561
Docket No.: 9246-US-PA
Application No.: 10/604,650

REMARKS

Present Status of the Application

The Office Action rejected claims 1-9. Specifically, the Office Action rejected claims 1-5 under 35 U.S.C. 102(e) as being anticipated by Tsai et al. (U. S. Publication 2003/0184979; hereinafter Tsai). The Office Action also rejected claims 6-8 under 35 U.S.C. 102(b) as being anticipated by Markovich et al. (U. S. Patent 5,665,526; hereinafter Markovich). The Office Action also rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Markovich in view of Tsai. Claims 1-9 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Claim Rejections under 35 USC 102

The Office Action rejected claims 1-5 under 35 U.S.C. 102(e) as being anticipated by Tsai. The Office Action also rejected claims 6-8 under 35 U.S.C. 102(b) as being anticipated by Markovich. Applicants respectively traverse the rejections for at least the reasons set forth below.

1. With respect to claims 1-5, independent claim 1 recites the features as follows:

1. A substrate, comprising:
a dielectric structure;
an interconnection structure interlacing inside the dielectric structure; and
a solder mask covering the dielectric structure, wherein the solder mask has a coefficient of thermal expansion substantially equal to the dielectric structure contacting the solder mask (Emphasis added).

Customer No.: 31561
Docket No.: 9246-US-PA
Application No.: 10/604,650

In FIG 14, the dielectric layer 102 and the interconnection structure 104 are, for example, shown. *The interconnection structure 104 is inside the dielectric layer 102.* Then, the solder mask 200 and 210 are covering the dielectric layer.

In re Tsai, Fig. 1 shows the core layer (or dielectric) 10. Then, the terminals 110 are formed on the core layer 10 *not inside* the dielectric layer 10. The second cover layer 12, serving as the solder mask layer, covers the substrate 10 and the terminals 110.

Tsai at least failed to disclose that the terminals 110 are formed inside the dielectric layer 10.

2. With respect to claims 6-8, independent claim 6 recites the features as follows:

6. A substrate, comprising:

a dielectric structure;
an interconnection structure interlacing inside the dielectric structure; and
a solder mask covering the dielectric structure, wherein the glass transition temperature of the material used for manufacturing the solder mask is over 200 degree C. (Emphasis added)

Markovich fails to disclose the structure of the substrate. Applicants have read through the specification, including col. 1, lines 35-45. However, there is no actual structure as recited in claim 6 being disclosed. Actually, Markovich only refers to "substrate circuit board", which does not specifically disclose the structure as recited in claim 6.

Furthermore, the temperature of 200°C is the glass transition temperature. It should be noted that the glass transition temperature is not the temperature for solder joining.

Customer No.: 31561
Docket No.: 9246-US-PA
Application No.: 10/604,650

Markovich (col. 2, lines 60-62) states that the temperature of 360 °C is for solder joining. This temperature does not disclose the *glass transition temperature* of the present invention.

3. With respect claims 26 and 27, in the present invention, the dielectric structure 102 includes a composite layer structure, so that the interconnect structure is formed inside dielectric structure. These features are further recited in newly added claims 26 and 27.

Discussion of Claim Rejections under 35 USC 103

The Office Action also rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Markovich in view of Tsai. Applicants respectfully traverse the rejections for at least the reasons set forth below.

With at least foregoing reasons applied to independent claim 6 or claim 1, Tsai does not supply the missing features in claim 9, which is depending on claim 6.

For at least the foregoing reasons, Applicant respectfully submits that independent claims 1 and 6 patentably define over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-5, 7-9, and 26-29 patentably define over the prior art references as well.

Customer No.: 31561
Docket No.: 9246-US-PA
Application No.: 10/604,650

CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-9 and 26-27 of the invention patentably define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date : April 7, 2005



Belinda Lee

Registration No.: 46,863

Jianq Chyun Intellectual Property Office
7th Floor-1, No. 100
Roosevelt Road, Section 2
Taipei, 100
Taiwan
Tel: 011-886-2-2369-2800
Fax: 011-886-2-2369-7233
Email: belinda@jcipgroup.com.tw
Usa@jcipgroup.com.tw